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ABSTRACT

The United States Training and Employment Service General Aptitude Test Battery (GATB), first published in 1947, has been included in a continuing program of research to validate the tests against success in many different occupations. The GATB consists of 12 tests which measure nine aptitudes: General Learning Ability; Verbal Aptitude; Numerical Aptitude; Spatial Aptitude; Form Perception; Clerical Perception; Motor Coordination; Finger Dexterity; and Manual Dexterity. The aptitude scores are standard scores with 100 as the average for the general working population, and a standard deviation of 20. Occupational norms are established in terms of minimum qualifying scores for each of the significant aptitude measures which, when combined, predict job performance. Cutting scores are set only for those aptitudes which aid in predicting the performance of the job duties of the experimental sample. The GATB norms described are appropriate only for jobs with content similar to that shown in the job description presented in this report. A description of the validation sample is included. (AG)

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# TECHNICAL REPORT

# ON

# STANDARDIZATION OF THE GENERAL APTITUDE TEST BATTERY

# FOR

CHARWOMAN (any ind.) 2-82.10
MAID, WARD (med. ser.) 2-24.12
PORTER I (any ind.) 2-86.10

B-532 S-255

TM 001 766

U. S. Employment Service in
Cooperation with
California State Employment Service

May 1963

GATB # 2428

STANDARDIZATION OF THE GENERAL APTITUDE TEST BATTERY

FOR

CHARWOMAN (any ind.) 2-82.10
MAID, WARD (med. ser.) 2-24.12
PORTER I (any ind.) 2-86.10

B-532

Summary

The General Aptitude Test Battery, B-1002B, was administered to a final sample of 52 male and 31 female custodians at the Los Angeles County General Hospital, Los Angeles, California. The criterion consisted of supervisory ratings. On the basis of mean scores, standard deviations, correlations with the criterion, job analysis data and their combined selective efficiency, Aptitudes V-Verbal Aptitude and M-Manual Dexterity were selected for inclusion in the final test norms.

GATB Norms for Charwoman 2-82.10, Maid, Ward 2-24.12 and Porter I 2-86.10, B-532.

| B-1001 | | | B-1002 | | |
|---|---|---|---|---|---|
| Aptitude | Tests | Minimum Acceptable Aptitude Score | Aptitude | Tests | Minimum Acceptable Aptitude Score |
| V | CB-1-J | 70 | V | Part 4 | 70 |
| M | CB-1-M<br>CB-1-N | 70 | M | Part 9<br>Part 10 | 70 |

Effectiveness of Norms

The data in Table IV indicate that only 69 percent of the non-test-selected workers used for this study were good workers; if the workers had been test-selected with the above norms, 81 percent would have been good workers. 31 percent of the non-test-selected workers used for this study were poor workers; if the workers had been test-selected with the above norms, only 19 percent would have been poor workers.

I. Purpose

This study was conducted to determine the best combination of aptitudes and minimum scores to be used as norms on the General Aptitude Test Battery for the occupations of Charwoman 2-82.10, Maid, Ward 2-24.12 and Porter I 2-86.10.

II. Sample

The General Aptitude Test Battery, B-1002B, was administered during the period May 21 to May 25, 1962, to a total sample of 56 male and 37 female custodians employed at the Los Angeles County General Hospital, Los Angeles, California. A total of 93 persons were tested at the County Hospital. Ten persons were eliminated from the sample: one person was eliminated due to illness; two persons were eliminated because they were assigned as working foremen; and seven persons were eliminated because of difficulty in taking the test. Therefore, the final experimental sample consisted of 52 male and 31 female custodians, or a total of 83 employed workers.

Applicants for custodial jobs at the Los Angeles County General Hospital must pass a Los Angeles County Civil Service "General Knowledge" test, and answer 21 to 30 questions correctly, equivalent to a 70% on the written portion of the test to qualify for an oral interview. The oral interview is conducted by a member of the Personnel Department of the hospital and by a section foreman of the custodial staff. The applicant is appraised on personal traits and fitness; no experience is required, and no education stipulations are stated; all applicants must be at least 18 years of age.

Two weeks of on-the-job training, under close supervision of the working foreman, is provided to all workers. Upon completion of the probationary period, which is six months, each worker is scheduled to attend a course in Custodial Maintenance and Engineering. This course, sponsored by the Los Angeles County General Hospital in cooperation with Los Angeles Trade Technical College, is given for 1-1/2 hours a week for two semesters and is a required course for all the custodial staff. Upon successful completion of the course, the worker is given a certificate in Custodial Maintenance and Engineering. All workers in this sample have completed their probationary period and are considered experienced workers.

TABLE I

Means (M), Standard Deviations ($\sigma$), Ranges, and Pearson Product-Moment Correlations with the Criterion (r) for Age, Education, and Experience

| N = 83 | M | $\sigma$ | Range | r |
|---|---|---|---|---|
| Age (years) | 40.8 | 10.3 | 24-65 | -.014 |
| Education (years) | 11.3 | 1.9 | 6-16 | .035 |
| Experience (months) | 107.7 | 66.4 | 12-308 | .060 |

III. Job Description

Job Title: Charwoman (any ind.) 2-82.10; Maid, Ward (med. ser.) 2-24.12; and Porter I (any ind.) 2-86.10.

Job Summary: Performs routine manual work, such as cleaning, sweeping, mopping, polishing, dusting and maintaining floors, walls, furniture and toilet room fixtures; operates electric floor cleaners and polishers.

Work Performed: Operates power driven equipment in waxing, polishing, buffing and scrubbing linoleum, cement, tile, marble, terrazzo, and wood floors. Sweeps waxed floor and mopswith clear water. Mixes stripping solutions according to written instructions and applies solutions to floors with mop; dry-mops floors; applies wax to floors; and buffs floors with machine.

Sweeps corridors and stairways. Vacuums rugs and carpets; dusts, cleans, and polishes furniture and furnishings, such as chairs, desks, and counter tops. Washes door glass, mirrors, windows, walls, ceilings, and high fixtures, working on ladders. Polishes metal work in elevators, corridors, rooms and stairwells. Cleans and disinfects cabinets, washbowls and toilet room fixtures, and other equipment. Replenishes toilet room supplies of soap and paper. Moves furniture and heavy equipment as required. Fills water coolers, and empties water receptacles. Sweeps and cleans up yards and grounds adjacent to buildings. Delivers ice to each ward when necessary. Delivers supplies to janitors' rooms. Cleans equipment such as brooms, mops, and buckets. Keeps janitors' rooms clean and tidy. Prepares supply requisition order, based on personal estimate, and submits to housekeeping office.

## IV. Experimental Battery

All the tests of the GATB, B-1002B, were administered to the sample group.

## V. Criterion

The criterion consisted of supervisory ratings made on USES Form SP-21, "Descriptive Rating Scale" developed by the United States Employment Service. Ratings were completed by the section supervisor of each worker. Second ratings were obtained for each worker after a period of at least two weeks. The rating scale consisted of nine items with five alternatives for each item. The alternatives indicated the degree of job proficiency attained. Weights of one through five were assigned to the alternatives so that the minimum possible score was nine and the maximum forty-five. The coefficient of reliability between the two ratings was .919 . Therefore, the final criterion score consisted of the combined scores of the two sets of supervisory ratings. The distribution of the combined scores ranged from 45 to 83, with a mean of 61.3 and a standard deviation of 8.9.

## VI Qualitative and Quantitative Analyses

### A. Qualitative Analysis

On the basis of the job analysis data, the following aptitude was rated "important" for success in this occupation:

Manual Dexterity (M) - required to manipulate hand tools and equipment for cleaning, such as brooms, mops, and machines; necessary when dusting, scrubbing, and polishing surfaces.

On the basis of the job analysis data, S-Spatial Aptitude was rated "irrelevant" for successfully performing the duties of this job.

B. Quantitative Analysis:

TABLE II

Means (M), Standard Deviations ($\sigma$), and Pearson Product-Moment Correlations with the Criterion (r) for the Aptitudes of the GATB; N = 83

| Aptitudes | M | $\sigma$ | r |
|---|---|---|---|
| G-Intelligence | 76.5 | 13.0 | .119 |
| V-Verbal Aptitude | 82.2 | 8.9 | .112 |
| N-Numerical Aptitude | 75.3 | 15.5 | .208 |
| S-Spatial Aptitude | 80.0 | 16.2 | .000 |
| P-Form Perception | 69.0 | 19.0 | .063 |
| Q-Clerical Perception | 80.7 | 13.5 | .008 |
| K-Motor Coordination | 84.3 | 18.0 | .085 |
| F-Finger Dexterity | 71.1 | 18.4 | .215 |
| M-Manual Dexterity | 84.8 | 21.1 | .275* |

*Significant at the .05 level

C. Selection of Test Norms:

TABLE III

Summary of Qualitative and Quantitative Data

| Type of Evidence | Aptitudes | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | G | V | N | S | P | Q | K | F | M |
| Job Analysis Data | | | | | | | | | |
| Important | | | | | | | | | X |
| Irrelevant | | | | X | | | | | |
| Relatively High Mean | | X | | | | | X | | X |
| Relatively Low Sigma | X | X | | | | X | | | |
| Significant Correlation with Criterion | | | | | | | | | X |
| Aptitudes to be Considered for Trial Norms | | V | | | | | | | M |

Trial norms consisting of various combinations of Aptitudes V and M with appropriate cutting scores were evaluated against the criterion by means of the Phi Coefficient technique. A comparison of the result showed that B-1002 norms consisting of V-70 and M-70 had the best selective efficiency.

## VII. Validity of Norms (Concurrent)

The validity of the norms was determined by computing a Phi Coefficient between the test norms and the criterion and applying the Chi Square test. The criterion was dichotomized by placing 31 percent of the sample in the low criterion group because this percent was considered to be the unsatisfactory or marginal workers.

Table IV shows the relationship between test norms consisting of Aptitudes V and M with critical scores of 70 and 70, respectively, and the dichotomized criterion for Charwoman 2-82.10, Maid, Ward 2-24.12 and Porter I 2-86.10. Workers in the high criterion group have been designated as "good workers" and those in the low criterion group as "poor workers."

TABLE IV

**Validity of Test Norms for Charwoman 2-82.10, Maid, Ward 2-24.12 and Porter I 2-86.10 (V-70, M-70)**

| N = 83 | Non-Qualifying Test Scores | Qualifying Test Scores | Total |
|---|---|---|---|
| Good Workers | 9 | 48 | 57 |
| Poor Workers | 15 | 11 | 26 |
| Total | 24 | 59 | 83 |

Phi Coefficient = .43
$\chi^2$ = 15.272
P/2 < .0005

The data in the above table indicate a significant relationship between the test norms and the criterion for the sample.

## VIII. Conclusions

On the basis of the results of this study, Aptitudes V and M with minimum scores of 70 and 70, respectively, have been established as B-1002 norms for Charwoman 2-82.10, Maid, Ward 2-24.12 and Porter I 2-86.10. The equivalent B-1001 norms consist of V-70 and M-70.

## IX. Determination of Occupational Aptitude Pattern

The data for this study did not meet the requirements for incorporating the occupation studied into any of the 35 OAP's included in Section II of the Guide to the Use of the General Aptitude Test Battery, January 1962. The data for this sample will be considered for future groupings of occupations in the development of new occupational aptitude patterns.